

1      **ABSTRACT**

2      Methods and systems are described that assist media players in rendering  
3      visualizations and synchronizing those visualizations with audio samples. In one  
4      embodiment, visualizations are synchronized with an audio stream using a  
5      technique that builds and maintains various data structures. Each data structure  
6      can maintain data that is associated with a particular pre-processed audio sample.  
7      The maintained data can include a timestamp that is associated with a time when  
8      the audio sample is to be rendered. The maintained data can also include various  
9      characteristic data that is associated with the audio stream. When a particular  
10     audio sample is being rendered, its timestamp is used to locate a data structure  
11     having characteristic data. The characteristic data is then used in a visualization  
12     rendering process to render a visualization.

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